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NOTES, INFORMATION & NEWS

Northern Range Extension for *Vitrinella floridana* Pilsbry & McGinty (Gastropoda: Prosobranchia: Vitrinellidae) from South Florida to the James River, Virginia[1]

by
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Vitrinella floridana Pilsbry & McGinty, 1946, is a planorbid marine gastropod which may reach a diameter of 2.1 mm (Ode, 1987). This minute gastropod is found living under rocks from the intertidal zone (Abbott, 1974) to a depth of 45 m (Ode, 1987). Moore (1964) reported *V. floridana* to range from southern Florida and Texas to Campeche Bank, Mexico. Vokes & Vokes (1983) collected the snail from northeastern Yucatan and Belize. A more northern population of *V. floridana* in the James River, Virginia, is reported in this paper.

Monthly benthic samples were collected from 4 X 84 through 13 VIII 85 on a subtidal oyster reef, Wreck Shoal, in the James River (37°03.2'N, 76°34.6'W). Mean water depth at Wreck Shoal is approximately 3 m at mean low water. During the study, the bottom water temperature ranged from 27.1 to 3.7°C, and the salinity ranged from 20.4 to 12.4‰. The substrate at Wreck Shoal is a composite of oyster shell, shell fragments, and sandy mud. Collections were made with a suction sampler (Larsen, 1974) which removes bottom material from an area of 126 cm^2. One hundred twenty-six (126) of the living gastropods collected were *Vitrinella floridana*; shell diameters ranged from 0.7 to 1.5 mm. Specimens have been deposited at the Philadelphia Academy of Natural Sciences (ANSP# A12188C).

Identification of a population of *Vitrinella floridana* living in the James River is significant in several respects. *Vitrinella floridana* was considered to live in warm, high salinity waters (Moore, 1964) as far north as the Indian River, south of Sebastian, Florida (Pilsbry & McGinty, 1946). The James River population represents a range extension of approximately 1100 km north of this location. Moore (1964) postulated that vitrinellids could invade northern waters during warm months, but would die of natural causes before the water temperature dropped significantly. In this study, live individuals of *V. floridana* were found throughout the winter, with the highest abundance (30/sample) collected on 11 II 85 when the water temperature was 3.7°C. Salinities in the James River are significantly lower than those reported at other collection sites (*e.g.*, Moore, 1964).

Studies of oyster reef fauna usually target known oyster predators such as oyster drills, and the ectoparasite *Boonea impressa* (Say, 1822). *Vitrinella floridana* is very small and easily overlooked; this may explain the lack of reports of this species along the mid-Atlantic coast.

Acknowledgments

The authors would like to thank Dr. Donald R. Moore for his interest, assistance, and encouragement, and for identifying our samples of *Vitrinella floridana*. We are indebted to Ray Morales-Alamo and Kenneth Walker for their assistance in the field and to Ya-Ke Hsu for help with processing the samples. We would also like to thank Dr. Roger Mann for his review of the manuscript. This work was funded by a grant to VIMS from the Commonwealth of Virginia.

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Larsen, P. F. 1974. A remotely operated shallow water benthic suction sampler. Chesapeake Sci. 15:176–178.

Moore, D. R. 1964. The family Vitrinellidae in south Florida and the Gulf of Mexico. Ph.D. Dissertation, The University of Miami, Coral Gables, Florida. 230 pp.

Ode, H. 1987. Distribution of records of the marine Mollusca in the northwest Gulf of Mexico. Texas Conch. 23(4):110–121.

Pilsbry, H. A. & T. L. McGinty. 1946. Vitrinellidae of Florida, part 4. Nautilus 60(1):12–18.

Vokes, H. E. & E. H. Vokes. 1983. Distribution of shallow water marine Mollusca, Yucatan Peninsula, Mexico. Mesosamerican Ecology Institute, Monograph 1, Middle American Research Institute. Publication 54. 1983:i–viii + 183 pp.

Soviet Contributions to Malacology in 1982

by
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As in previous synopses of the Soviet malacological literature (see Veliger 29[3]:340–348 for the most recent pre-

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vious listing and reference to earlier ones), we offer a translation of the original titles and a summary of the work as abstracted in the Referativnyy Zhurnal in 1982. Generally speaking, we have utilized the categorizations employed by the Referativnyy Zhurnal.

Several papers established new genus- and species-level taxa, not only in the fauna of the Soviet Union but in other faunas. These include: Tavasieva on helicoid land snails of the Caucasus; Johansen and Starobogatov on triculids from Siberia; Izzatullaev on bithyniids from Central Asia; Stadnichenko on finger-nail clams (Cycladidae or Sphaeridae) from the Ukraine; and Chistikov on entalinid scaphopods.

Drastic shifts in the system of classification of prosobranch gastropods were introduced by Sitnikova and Starobogatov, who significantly altered previously accepted systems by allying the cowries and viviparids into a group called the Vivipariformii. This group is placed in an even higher taxon, the Archeotaenioglossa, erected on the basis of radular characters. Several family-level taxa are transferred from one order to another, and the authors have elevated the traditionally recognized subfamilies of viviparids into families.

General faunistic studies include delineations of the molluscan faunas of particular zoogeographic areas in the Soviet Union: Grundrizer recorded 55 species in Kureyka Lake of the Yenisey Basin in Siberia; Karabeili, 64 species in the Caspian Sea; Shikov, 51 species of land mollusks in the Valdai Hills; Zatravkin, 93 species in Seliger Lake of the Upper Volga; and Zatravkin and Bogatov, 69 species in the Amur River drainage of Siberia.

Interesting biological and ecological analyses include those of Sergievskii on *Littorina obtusata* in the White Sea and the Stadnichenkos on lymnaeids in the Crimea. Augmenting the classical work of Bondeson on the egg capsule morphology of freshwater pulmonates, Berezkina and Starobogatov have developed a new descriptive terminology for the encapsulated eggs of lymnaeid gastropods.

Among studies dealing with the Bivalvia, the analysis of the morphology of *Clencharia* by the late Dr. Z. Filatova and her colleague Dr. A. A. Shileiko constitutes an important contribution to the knowledge of protobranch anatomy. Kulikova *et al.* provide a description of the larval morphology of three different species of pectinids from the Far East.

In studies relating to cephalopods, Nesis has made two important contributions. One, an overview of the currently accepted higher taxonomic units within the Class, concludes that this systematic scheme reflects the true phyletic relationships of these animals. The other analysis constitutes a delineation of zoogeographic regions and zones of the world's oceans based on the distribution of cephalopods.

ABBREVIATIONS

BMV—Biologiya Morya (Marine Biology, Vladivostok)
ES—English Summary
GZ—Gidrobiologicheskii Zhurnal (Hydrobiological Journal)
SID—Sbornick Rabot Institute biologiya morya Dal'nevost. nauch. tsentr. Akad. Nauk. SSSR (Papers of the Marine Biological Institute of the Far Eastern Scientific Center, Academy of Sciences, USSR)
ZEBF—Zhurnal Evolyutsionnoi biokhimii i fiziologii (Journal of evolutionary biochemistry and physiology)
ZOB—Zhurnal Obshchey Biologii (Journal of General Biology)
ZZ—Zoologicheskii Zhurnal (Zoological Journal)

GENERAL

Gundrizer, V. A. 1981. Studies of the malacofauna of Kureyka Lake (Lower Yenisey Basin). Ekol.-faunistich. issled. Sibiri [Ecological and Faunistic Studies in Siberia] Tomsk, pp. 90–94.

[New data are presented on the freshwater malacofauna of the Kureyka River. Fifty-five species of mollusks are reported from the waterways of the region (16 for the first time from the Lower Yenisey Basin); examined are their roles in the diets of fish, and their ecological and zoogeographic affinities. Systematically, the mollusks belong to 7 families: Valvatidae (2 species); Bithyniidae (2); Lymnaeidae (18); Physidae (18); Bulinidae (2); Planorbidae (8); Pisidiidae (18). Zoogeographically, the mollusks have representatives of 4 faunal regions: Holarctic (4 species); Euro-Siberian (39); Asiatic (1); Siberian (11).]

Izzatullaev, Z. 1981. On the study of ecological groupings of freshwater mollusks from the eastern Pamirs. Krugovort Veshchestva i energii v vodoemakh. Tez. Doklady k 5-y Vses Limnol. Listvenichnoe na Baikala [Thesis Reports of the Fifth Annual All-Union Society of Limnology. Leaflets on Baikal], Vol. 2, Irkutsk, pp. 135–136.

[Thirty-one species of freshwater mollusks, both gastropods and bivalves, inhabiting lakes, rivers and thermal springs, are found in the eastern Pamirs. The species are categorized according to ecological preferences.]

Karabeili, O. Z. 1981. Gastropod mollusks of the Central and Southern Caspian Sea. Vozdeistvie antropogen faktorov na faunu i ekol. zhivotnikh v Aserbaidzhane [Influence of human factors on the fauna and ecology of Azerbaijan] Baku, pp. 87–96.

[Sixty-four species of gastropods were collected in 321 benthic samples from the Central and Southern Caspian Sea. There were 53 species in the Central Caspian, of which 24 were characteristic, while 10 were characteristic in the Southern Caspian, which has 40 species. Data include: depth, optimal substrate, and percent occurrence. It is suggested that *Caspia gmelini* and *C. isseli* are subspecies of the same species, as are *C. schorygini* and *C. nana*. Twelve groups of gastropods are distinguished based on the breadth of their distributions (from those broadly distributed along the Central and Southern Caspian to those occurring only in the eastern or western portion of one region). Also included are data on the distribution of species by depth, the number of species per sample and the percent of species occurring on the various substrates.]

Khokhutkin, I. M. & Yu. A. El'kin. 1982. Experimental application of binary relationships for the estimation of resemblance of biotic associations using terrestrial mollusks as models. Phenetika Populyatsii (Population Phenetics), Moscow, pp. 125–132.

[Nine hundred seventy-five species of terrestrial mollusks were used in a study correlating characters of the shell with systematic-phylogenetic systems.]

Lyurin, I. B. & V. M. Zakalyuzhnyi. 1982. Observations on the distribution of the malacofauna in the central basin of the Dnieper River. Materials for the Second Scientific Conference of Molluscan Research. Geological Series. Odessa, pp. 91–94.

[The ecological features of the distribution of the molluscan fauna of this area are given; special emphasis is paid to the reservoirs and other important habitats of aquatic invertebrates along the central Dnieper. The potential utility of these mollusks as food is discussed.]

Nikolaev, V. A. 1981. History of the study of the terrestrial molluscan fauna of the Central Russian Hills. Nauch. Tr. Kursk Ped. In-ta [Scientific Transactions of the Kursk Pedagogical Institute] 210:65–70.

[An historical review of studies on the molluscan fauna of this region, beginning with the work of Dvigubsky (1831) and including subsequent studies, such as regional reviews and taxonomic monographs, is presented.]

Shikov, E. V. 1981. Mollusks of the coniferous forests of the Valdai Hills and adjacent territories. "Fauna of the Upper Volga, its conservation and utilization" Kalinin, pp. 28–45.

[The malacofauna of coniferous forests in 29 regions of Kalinin and Novgorod Provinces was found to consist of 51 terrestrial species. The most speciose fauna is encountered in forests of average moisture, with thick grass cover and well developed deciduous subforest and shrubbery. Ecologically, particular land snails have preferences for certain types of plant associations or well defined phytocenoses.]

Yaroslavtseva, L. M. 1981. A method for determining the limits of the osmoregulatory mechanism in marine mollusks. Inst. Marine Biol. Far Eastern Science Center, Acad. Sci. USSR. Manuscript [no pagination given].

[Preparations of ciliated epithelium from ctenidia were exposed to solutions of different salinities; changes in the beating of the cilia were correlated with changes in salinity, and a graphic analysis of the loss of activity is presented. This simplified method does not require elaborate or specialized equipment, and can be used under field conditions.]

Zatravkin, M. N. 1981. Mollusks of the Upper Volga and Seliger Lake. ZZ 60(12):1878–1881 (ES).

[During a 1973 survey of the nearshore zone of the Upper Volga Lakes (Upper Volga Reservoir) and Lake Seliger, 79 species of mollusks were collected from 10 lakes and the lower portions of rivers and streams that fall into them. The reservoir was formed in 1843 as a result of the construction of a dam above where the Selizharovka River leaves Lake Seliger. As the Upper Volga Lakes are interconnected by the Volga River and actually form its channel, their fauna as well as the riverine species of mollusks are included. In a zoogeographic sense, the studied waterways belong to the Euro-Siberian subprovince of the Baltic province. Included is a list of 93 mollusks (58 gastropods, 35 bivalves) that occur in this region. There are two Baltic endemics, *Marstoniopsis steini* and *Anisus vorticulus*; the principle zoogeographic affinities of the other species are delineated.]

Zatravkin, M. N. & V. V. Bogatov. 1981. Freshwater mollusks of the lower basin of the Amur River. Tez. Doklady k 5-y Vses Limnol. Listvenichnoe na Baikala [Thesis Reports of the Fifth Annual All-Union Society of Limnology. Leaflets on Baikal], Vol. 2, Irkutsk, p. 155.

[Sixty-four species of mollusks, including 12 new species and 4 new records for the Amur Basin were collected in the Nanaysk, Komsomol'sk and Ul'chsk regions of Khabarovsk Territory. Based on these data as well as literature records, the malacofauna includes 69 freshwater species (38 gastropods, 31 bivalves). Distributions of species by geographic areas and types of waterways are examined.]

Zayko, V. A. & I. M. Romanenko. 1981. Microprobe analyses of the shells of mollusks living in different salinity conditions. BMV 1981(5):74–75 (ES).

[The distribution of chlorine in radial sections of shells of marine, brackish, and freshwater mollusks was studied. The average level of chlorine in shell material increased with an increase in the salinity of the habitat. A correlation was established between seasonal variation in chlorine levels in the shells and salinity of the habitat of corbiculids.]

GASTROPODA, GENERAL PROBLEMS

Rex, M. A. & A. Waren. 1981. Evolution in the deep-sea: taxonomic diversity in benthic gastropods. Biology of the great depths of the Pacific Ocean, Proceedings of the 14th Pacific Science Congress. Khabarovsk. Aug. 1979. Section Marine Biology, Vladivostok, Part 1, pp. 44–49 (ES).

[The taxonomic diversity (average number of species per genus) of deepwater gastropods was studied as an indicator of the degree of adaptive radiation in habitats situated at various depths along the western portion of the North Atlantic. The normalized number of species per genus was lowest on the shelf and increased with depth, reaching its maximum on the continental slope, but again decreased on the abyssal plain. The results presented indicate that gastropods have the highest probability for speciation at bathyal depths (200–4000 m). A less important center of evolutionary radiation occurs at abyssal depths (>4000 m).]

GASTROPODA, PULMONATA, AQUATIC

Alyakrinskaya, I. O. 1981. Adaptation of some freshwater mollusks to conditions in contemporary waterways. ZZ 60(9): 1339–1346 (ES).

[Under similar conditions, *Planorbis planorbis* always contains 2–3 times the amount of hemoglobin found in *Planorbis corneus*.]

Alyakrinskaya, I. O. 1981. Provision of reserve nutrients in the eggs of some gastropods. Doklady AN SSSR [Reports of the Academy of Sciences USSR] 260(1):245–248.

[Levels of albumin in the albuminous fluid of the eggs of *Viviparus viviparus, Helix pomatia,* and *Planorbis corneus* were studied quantitatively. Maximum initial concentrations of albumin averaged 37% in *Viviparus*. This was approximately 2.5 times the concentration found in *Helix*, and 4–7 times the concentration in *Planorbis*.]

Arakelova, E. S. 1982. The effectiveness and type of growth in two species of freshwater pulmonate mollusks. ZOB 43(4): [no pagination given] (ES).

[Growth and respiration of juvenile individuals of *Lymnaea ovata* and *Planorbis planorbis* were studied experimentally. Correlations were shown between the rate of growth, shell dimensions, and body mass of these mollusks. Growth rates of juveniles can be approximated by a parabolic function. The coefficient for energy utilization for growth (K_2) was emperically calculated. Growth efficiency decreases in one species, but remains unchanged, or changes insignificantly in the other.]

Berezkina, G. V. & Ya. I. Starobogatov. 1981. Morphology of the egg capsules of several mollusks of the genus *Lymnaea* (Gastropoda: Pulmonata). ZZ 60(12):1756–1768 (ES).

[The terminology for describing the morphology of egg capsules of freshwater mollusks, especially lymnaeids, is discussed. The term "egg" is applied only to the egg cell with its vitelline membrane, as is accepted in embryology. The egg, surrounded by albuminous fluid and two membranes, is called the "egg capsule." The term "syncapsule" is proposed for a group of egg capsules, immersed in a mucilaginous matrix and completely enclosed in a membrane. The spawn (syncapsules) of 21 species, representing 6 subgenera of the genus *Lymnaea*, are described using this terminology, based on material from Smolensk state. For each species, data on the dimensions of the syncapsule, the number of capsules per syncapsule, as well as the measurements and proportions of the egg capsules are presented. Interspecific differences in the structure of syncapsules and in the dimensions of their elements are noted.]

Davidov, A. F., N. D. Kruglov & Ya. I. Starobogatov. 1981. Experimental interbreeding of two forms of *Lymnaea stagnalis* with notes on the systematics of the subgenus *Lymnaea s.s.* (Gastropoda: Pulmonata). ZZ 60(9):1325–1338 (ES).

[Conchological analysis of extensive collections of Palearctic representatives of *Lymnaea stagnalis* have shown that they group into six forms, differing, in addition to shell morphology, in distribution and biotope adaptation. Sympatric records (without intergrades) and different distributions in parts of their ranges suggest the presence of six species: *L. fragilis* (L.), *L. stagnalis* (L.), *L. elephila* Kob. non Bgt., *L. doriana* Bgt., *L. media* Hartm. and *L. bodamica* Mill. As a partial test of this hypothesis, experimental crosses of *L. fragilis* × *L. stagnalis* were bred, using a specially developed method. Shell proportions, as well as the morphology and structure of the reproductive system and egg capsules were compared. Results of analyses of F_1, F_2, and F_3 generations showed that in nature, these groups cannot interbreed. American representatives of this group probably belong to five species: *L. occidentalis* Hemph., *L. lepida* Gould, *L. sanctamariae* Walk., *L. jugularis* Say, and *L. stagnalis*, the last introduced into the region of the Great Lakes from Europe. Their systematics requires further careful study of additional material. *Lymnaea s.s.* thus includes a total of 10 Recent species.]

Shakhmaev, N. K. 1982. Levels of iron and manganese in the bodies of some mollusks. Khim i biokhim okisl. sistem, sodersh d-elementy (Chemistry and biochemistry of the oxidative system, levels of d-elements) Chelyabinsk, pp. 57–61.

[In an analysis of the levels of iron and manganese in *Lymnaea* and *Planorbis*, the authors found that in the body of the latter, levels of iron are 3–4 times higher, and manganese 2.4 times higher, than in the former. Similarly, the shell of *Planorbis* contains 1.4 times more iron and 1.9 times more manganese than that of *Lymnaea*.]

Stadnichenko, A. P. & Yu. A. Stadnichenko. 1982. On the molluscan fauna of the *Lymnaea stagnalis* group in the waterways of Crimea. ZZ 61(3):443–445 (ES).

[In the waterways of the Ukraine, there are four described species of the genus *Lymnaea*: *L. stagnalis, L. fragilis, L. doriana,* and *L. producta,* three of which are widely distributed in the European portion of the USSR. *Lymnaea doriana* is known only from old collections. Only *L. stagnalis* is mentioned in the large body of work on the freshwater malacofauna of the Ukraine. Nevertheless, the study of whorl configuration as well as of a number of other conchological indices confirms these species as separate taxa. In 1949, species of the *stagnalis* group, together with a number of other freshwater mollusks, were introduced to the Crimea from the lower Dnieper River. At the present time, these species have spread beyond the limits of the waterways into which they were originally introduced. It is the opinion of the authors that the *stagnalis* group is represented in Crimea by three distinct species—*L. stagnalis, L. fragilis,* and *L. producta.*]

Zaitseva, O. V. 1981. Distribution of afferent elements in the central nervous system of pond snails. Arkhiv anatomii, gistol., i embriol. [Archiv for Anatomy, Histology and Embryology] 81(11):35–42 (ES).

[Perfusion with cobalt chloride and horseradish peroxidase aids in determining the distribution of afferent axons and primary sensory cells of the nerves in the cerebral ganglia of the CNS of the mollusk *Lymnaea stagnalis*. Sensory axons pass through the neuropile as well differentiated, strongly localized bundles and form several sensory centers in the ganglia. Numerous sensory filaments extend along the connectives and commissures from the cerebral ganglia to neighboring ganglia on the same and opposite sides of the CNS. A central type of neuropile structure lacking dorsoventral differentiation appears to be characteristic of molluscan Central Nervous Systems.]

GASTROPODA, PULMONATA, TERRESTRIAL

Al'mukhambetova, S. K. 1981. Short guide to the *Pupilloidea* (Mollusca: Gastropoda) of the mountain ranges of southern and southeastern Kazakhstan. Izv. AN KazSSR, Ser. Biol. [Proceedings of the Academy of Sciences Kazakhstan SSR, Biology Series], No. 6, pp. 29–32 (Kazakhstani Summary).

[This is a short guide to the pupilloid snails of this area and may be valuable to geologists studying Neogene and Quaternary formations, as well as to parasitologists concerned with the mollusks that are intermediate hosts to trematode worms.]

Dmitrieva, E. F. & M. Morozov. 1981. Effect of methaldehyde on the reproductive activity of the reticulated slug. Nauch. Tr. Leningr. S-Kh. Inta [Scientific transactions of the Leningrad S. Kh. Institute. 405:54–56.]

[Experimental studies have shown that methaldehyde reduces the rate of reproductive development of the reticulated slug, significantly reduces the quantity of eggs laid, increases the speed of their incubation, decreases the percent of young born, and slows their rate of growth.]

Gromov, A. I., O. A. Monseeva, I. V. Malina, N. V. Gromova & S. D. Orekhov. 1982. Levels of the prostoglandins Fa and E in the tissues of the escargot *Helix pomatia*. ZEBF 18(3): 299–301 (ES).

[Quantitative determinations of levels of the prostoglandins Fa and E in the hemolymph, muscle tissues (caudal portion of the foot), preparations of nerves and buccal ganglia, and also a total nervous system preparation are reported. The highest concentrations are in the nerve tissues. In all cases, levels of prostoglandin E were significantly higher than prostoglandin Fa. These high levels are construed to be indicative of higher intensities of biosynthesis, especially important in the activity of nerve cells. This conclusion is in agreement with the hypothesized role of prostoglandins as regulators of cellular metabolism.]

Il'inskaya, O. P. 1981. Morphological and autoradiographic studies on newly formed connective tissue in the vineyard snail. Materialy 12-i Konf. Mol. Uchenykh biol. fak. MGU [Proceedings of the 12th Molluscan Conference, Biology Faculty,

Moscow State University], Moscow. 1981:129–132. Manuscript deposited in VINITI, No. 5484-81 Dep.

[The processes of inflammation and formation of new connective tissue around experimentally introduced foreign bodies (cat gut sutures) were studied in the vineyard snail. The course of the inflammation reaction was followed for periods from 12 h to 15 days after the implantation. There were two morphologically identified cellular elements mediating the reaction: amoebocytes, fulfilling the defense-phagocytic function, and fibroblast-like cells, forming new connective tissue. ^{3}H-thymidine autoradiography showed that these cells have low proliferative activity at the focus of inflammation, and originate from rapidly proliferating precursor cells, located beyond the limits of the focus. These cells, precursors of amoebocytes and fibroblast-like cells, migrate into the site, where their proliferative activity decreases and differentiation is completed.]

Kovalev, V. A., O. V. Zaitseva & V. A. Sokolov. 1982. Investigations of the cerebral portions of the sensory system of the statocysts in pulmonate mollusks. ZEBF 18(4):355–360 (ES).

[The central nervous structures of the statocyst systems on the cerebral ganglia of the pulmonate mollusks *Lymnaea stagnalis* and *Helix vulgaris* were studied in morphological and electrophysiological experiments. By injecting a solution of calcium chloride across the statocyst nerves in both cerebral ganglia, the authors detected several regions of localized neurons that extended their dendrites into the statocyst nerves. Neurons with different types of electrophysiological reactions were found in the zones innervated by these cells. Neurons that did not react to adequate stimulation of the statocysts were also detected. These experiments provided a basis for the assumption that there are no morphological differences distinguishing specific stato-acoustic centers in the cerebral ganglia of pulmonates. Neurons responding to vibrational stimulation, and apparently related to different levels of the sensory system of the statocysts, are situated in different portions of the ganglia.]

Meshkova, N. M. 1982. Changes in body size and protein levels in *Deroceras* (*Agriolimax*) *reticulatum* (Müller, 1774) during growth. Doklady AN SSSR [Reports of the Academy of Sciences USSR] 262(3):740–742.

[Growth of 22 individually maintained slugs was studied under conditions of controlled temperature, humidity, and photoperiod for 6.5 months. Two stages of growth, each with a different average specific rate of growth (srg), occurred in 86% of the individuals. Protein levels in the cells of the reticulated slug were not constant and appeared to be a function of age. The relative quantity of protein in the organism increased from birth to the 75th day of growth, reaching 6.2% (wet weight); after this it gradually decreased to 4.9%.]

Meshkova, N. M., Yu. B. Bysova, M. N. Vilenkina & B. Ya. Vilenkin. 1982. Respiration in growing individuals of *Deroceras* (*Agriolimax*) *reticulatum* (Pulmonata, Agriolimacidae). ZZ 61(8):1148–1153 (ES).

[Body mass and oxygen consumption were measured weekly for each of 23 specimens of *Deroceras reticulatum* that were individually maintained for 200 days, beginning 7–15 days after hatching. The slugs were maintained under conditions of constant temperature, humidity and photoperiod. Statistical analyses of oxygen consumption relative to growth rate showed that the relationship between respiration rate and body mass in growing slugs was more correctly approximated by the linear function $Q = n + mW$, than by the equation $Q = AW^k$.]

Nikolaev, V. A. 1981. Variability and ecology of the enids of the Central Russian Hills. Nauch. Tr. Kursk Ped. In-ta [Scientific Transactions of the Kursk Pedagogical Institute] 210: 54–57.

[Two species of Enidae, *Chondrula tridens* and *Ena obscura,* were found in the study area. The former occurred in two conchological forms, differing in dimensions and degree of development of the apertural armature. The larger form, not commonly found, occurred in more xerothermal conditions with relict vegetation.]

Shapiro, Ya. S. 1981. Estimation of the densities of the slug *Deroceras* (Stylommatophora: Agriolimacidae) in agricultural regions. Nauch. Doklady Vyssh Shk. Biol. N. [Scientific Reports of the Schools for Higher Education in Biological Sciences], No. 10:103–106.

[Studies of criteria for predicting the probability of penetration of introduced species of slugs into agricultural regions, and for estimating their population dynamics were conducted in Leningrad District during the years 1972–1979.]

Tavasieva, T. A. 1982. A new species of gastropod mollusk, *Caucasigena ossetica* n. sp. (Hygromiidae), from the Central Caucasus. ZZ 61(6):938–939 (ES).

[The shell and reproductive system of *Caucasigena* (*C.*) *ossetica,* a new species of hygromiid, are described. The yellowish-white shell is toplike, with a nearly conical contour, and is very similar to the shell of *Stenomphalia selecta.* However, it differs by being larger (major diameter 9–13 mm) and in having an umbilicus that is only slightly covered by the columella. The genitalia contain structural features of both *Kokotschavilia* (form of seminal receptacle) and *Caucasigena* (organization of penial papillae). This species inhabits the Central Caucasus and Northern Osetin, where it is encountered in a variety of habitats at altitudes of 900–2600 m.]

GASTROPODA, PROSOBRANCHIA

Gul'bin, V. V. & M. V. Shul'mina. 1981. Gastropod mollusks from the littoral zone of Sakhalin Island. SID (24):62–74.

[The authors provide a short bibliography and summarize the geographical distribution and ecological characteristics for each of the 43 species found. The zonal-geographic structure of the malacofauna of the entire region is discussed, as are its changes in different parts of the littoral zone.]

Ioganzen [Johansen], B. G. & Ya. I. Starobogatov. 1982. On the discovery of a freshwater mollusks of the family Triculidae (Gastropoda, Prosobranchia) in Siberia. ZZ 61(8):1141–1147 (ES).

[*Sibirobythinella kuznetzkiana,* gen. et sp. nov. is described from the relict "Linden Island" in the foothills of the Kuznetskiy Alatau Mountains [near Stalinsk, western Siberia]. This genus may be readily distinguished from the European *Bythinella* and *Belgrandiella,* which have similar shells, and from the many similar members of the family Triculidae, in which this genus is included, on the basis of radular morphology. This new genus differs from *Pseudobythinella* in having a parietal tooth in the aperture. The issue of uniting the Triculidae and several other closely related families in the superfamily Littoridinoidea is discussed. The presence of relict representatives of the family Triculidae in Siberia and Central Asia, preserved there since the Paleogene, is noted, as is the importance of studying and preserving the relict "Linden Island" fauna in the foothills of the Kuznetskiy Range].

Izzatullaev, Z. 1982. Mollusks of the family Bithyniidae (Gastropoda: Pectinibranchia) from Central Asia. ZZ 61(3): 336–340 (ES).

[The genus *Digoniostoma,* hitherto known only from India, southern China, and the Malay Archipelago, is recorded in the freshwater fauna of the USSR. *Digoniostoma oxiana* is described as new and *D. kashmirense,* originally considered a variant from Kashmir, is raised to species status. *Boreoelona caerulans moltschanovi* is added to the fauna of Tadzikistan. Tables for identifications of species are included.]

Kantor, Yu. I. 1982. On the type-species of the genus *Volutopsius* (Gastropoda, Pectinibranchia). ZZ 61(6):843–850 (ES).

[The synonymies of two species of *Volutopsius, V. norvegicus* and *V. largillierti,* both from the northern portion of the Atlantic are critically reviewed. The independence of these closely related species is confirmed based on anatomical data. *Volutopsius largillierti* is the type species of *Volutopsius,* representatives of which are active, selective predators of ophiuroids.]

Kondratenkov, A. P. & V. V. Khlebovich. 1981. Dynamics of salinity acclimation and deacclimation of the gastropod mollusk *Hydrobia ulvae.* BMV 1981(4):55–58 (ES).

[*Hydrobia ulvae* acclimates to reduced salinity in 6 days; deacclimation occurs more rapidly than acclimation.]

Sergievskii, S. O. 1982. Ecological studies on the polymorphism of the littoral mollusk *Littorina obtusata* (L.) in the White Sea. Povysh. produktiv. i ratsional. ispol'z. biol. resursov Belogo Morya. Materialy I Koordinats. Sovesh., Leningrad, Mai, pp. 78–79. [Increasing productivity and rational utilization of the biological resources of the White Sea. Materials and Coordinating Conference, Leningrad, May 1982, pp. 78–79].

[The functional significance of polymorphism in *Littorina obtusata,* a common species in the littoral of the White Sea, was investigated, based on approximately 750 samples totaling about 50,000 specimens collected between 1974 and 1981 from different portions of Kandalakshky Bay. Variation in shell color was attributed to three independent loci, with allelic combinations producing over 10 phenotypes. In most populations, 2–3 phenotypes comprised not less than 85% of the variation. Changes in the frequencies of the phenotypes occurred within populations in the absence of isolating barriers. Microgeographic changes were studied in the regions of the Northern Archipelago and of Chupa Inlet. In the former, conditions were fairly uniform, and there was little change in the phenotypic composition of the populations. In Chupa Inlet, two basic trends were evident: (1) in the estuary of the Keret River, there was a sharp increase in the frequency of one of the phenotypes from a normal level of 5–10% to 40–50%; (2) in populations occurring in exposed areas, the degree of polymorphism was significantly higher than in protected ones. Although phenotypes were not affected by trematode infections, both decreased salinity and increased temperature significantly altered the occurrence of different phenotypes. Thus, these data indicate that polymorphism in shell color is adaptive in *L. obtusata.*]

Sitnikova, T. Ya. & Ya. I. Starobogatov. 1982. The extent and systematic status of the group Architaenioglossa (Gastropoda, Pectinibranchia). ZZ 61(6):831–842 (ES).

[A detailed analysis of the homology of the radular teeth of gastropods shows that representatives of the Viviparoidea, the American cyclophorids Neocyclotoidea as well as the Pomatioidea, Valvatidae, Cypraeidae, Ovulidae, and Archimediella possess a specific type of radula, herein called the "archeotaenioglossate." The majority of the representatives of the above groups have a characteristically arranged mantle cavity and pallial oviduct extending from the region of the pericardium. It is proposed that the above enumerated groups be united into the superorder Viviparіformii, with two orders: Cypraeiformes (Cypraeidae and Ovulidae) and Viviparіformes (the other groups). The second of these can be divided into two suborders: Viviparoidei (the majority of the families) and Valvatoidei (Valvatidae). The Old World cyclophorids, including the Cyclophoroidea as well as the Pilidae and Tornidae, are transferred to the order Littoriniformes as representatives having a taenioglossate (but not archeotaenioglossate) radula and the usual mantle cavity morphology. On the basis of the structure of the male reproductive system, the family Viviparidae should be divided into three independent families: Lioplacidae, Viviparidae, and Bellamyidae. The genus *Archimediella* is excluded from the family Turritellidae on the basis of radular morphology and is placed in the independent family Archimediellidae, forming a superfamily in the suborder Viviparoidei.]

Vilenkina, M. N. & B. Ya. Bilenkin. 1981. Acclimation and temperature preferences of *Littorina littorea* and *L. obtusata* (Gastropoda: Littorinidae) in the White Sea. ZZ 60(11):1621–1628 (ES).

[Representatives of these snails were collected from the littoral of Kandalak Bay and their temperature preferences and abilities to acclimate to different thermal regimes were investigated.]

BIVALVIA

Belayeva, G. G. 1981. Phenoloxidase in the marine bivalves *Crenomytilus grayanus* and *Modiolus difficilis.* ZOB 42(5):771–779 (ES).

[This is the first report and study on the secretions of phenoloxidase by the blood cells of bivalve mollusks. Described are: the participation by the nucleus in the secretion, granulation of the cytoplasm, occurrence of droplets of secretion close to the membrane and in the blood plasma, and mechanisms of secretion, including openings in the membrane and formation of bridges in the cytoplasm. In mollusks, this enzyme can be secreted by all amoebocytes, in contra-distinction, specifically, to insects, in which this function is performed by specialized cells in the blood. It was shown that the variety of forms, structures, dimensions, and colors of amoebocytes may be connected with the process of secreting phenoloxidase.]

Bulatov, K. V. & V. N. Ivanov. 1981. The karyotype of the Black Sea Mussel *Mytilus galloprovincialis* Lam. Tsitol. i Genet. [Cytology and Genetics] 15(6):69–71.

[The chromosome number of the Black Sea mussel from the region of Sevastopol was 2n = 28. The karyotype consisted of 6 pairs of metacentric, 6 pairs of submetacentric and 2 pairs of subteleocentric chromosomes. *Mytilus galloprovinciallis* cannot be distinguished karyotypically from *M. edulis* or *M. californianus* from the Pacific coast of the United States.]

Dotsenko, B. N., L. N. Trofimova & L. M. L'vova. 1982. Experiments on the production of food-stuffs on the basis of the utilization of detritus. Ryb. Kh-vo [Commercial Fisheries], No. 5, p. 41.

[Increase in body mass was studied for 1 month in undetermined species of bivalves mantained in three aquaria, one with detritus, one with detritus and pepsin, and one without detritus. Results showed average growth of 3.4 g in the first, 1.5 g in the second, and 2.8 g in the control. These results suggest the potential use of detritus for the cultivation of bivalves.]

Fedorov, V. V. & I. A. Tsukurov. 1981. Environmental studies of the habitat of the littoral scallop by the topographic method. Tez. Vses. Konf. Mol. Uchenykh Posvyashch 60 Letiu Plavmor, Moscow. [Theses of the All-Union Conference of Molluscan Researchers dedicated to the 60th anniversary of the Plavmor Scientific Institute], Moscow, 11–12 April 1981. pp. 29–30. Manuscript.

[A new method for surveying the topography of nearshore regions that conform to the requirements for cultivating scallops is presented, along with results of field and laboratory studies.]

Filatova, Z. A. & A. A. Shileiko. 1982. Structure and ecology of the deepwater species *Clencharia diaphana* (Clarke, 1961) (Bivalvia: Protobranchia). Byul. Mosk. O-va. Ispit. Prirodi Otd. Biol. [Bulletin of the Moscow Naturalist's Society. Biology Section] 87(2):53–62.

[A functional-morphological analysis of the principal features of the organization of the species, described as *Tindaria* (*Clencharia*) *diaphana,* allows several conclusions to be drawn as to its mode of life. In life, the animals are buried in the upper layer of the bottom sediment, with only the tips of their siphons reaching the surface. Weak development of pedal musculature attests to the poor mobility of this mollusk. Food material, which enters the mantle cavity, is collected by the labial palps from the ctenidia, and possibly, from the inner surfaces of the mantle. The ctenidium, supported by elastic ligaments, serves as the primary water circulating mechanism. When compared with species of the genus *Tindaria,* the independence and distinctness of the monotypic genus *Clencharia* seems clear.]

Gabaev, D. D. & S. M. L'vov. A collector for artificially cultivating mollusks. [No date given; a patent?]

[A collector for marine scallops is described wherein larvae settle and eventually grow to marketable size.]

Kafanov, A. I. 1981. Revision of the genus *Ciliatocardium* Kafanov, 1974 (Bivalvia: Cardiidae). SID (24):43–61.

[Seven forms, including *Ciliatocardium ciliatum ochotense,* ssp. nov. and *C. ciliatum nordenskioeldi,* ssp. nov., are added to the Recent fauna. A diagnosis of the genus, including Recent and fossil forms, is provided as are diagnostic tables for all species group taxa.]

Kharazova, A. D. & S. V. Fedoseeva. 1981. The effect of salinity changes on protein metabolism in tissues of the edible mussel *Mytilus edulis* from the Sea of Japan. BMV 1981(5): 76–78 (ES).

[Uptake of tritiated glycine in gill epithelium is initially inhibited in reduced salinities but later restored.]

Kharazova, A. D., V. Ya. Berger, V. I. Fateeva, L. M. Yaroslavtseva & P. V. Yaroslavtsev. 1981. Influence of salinity on the dynamics of protein synthesis in isolated gill of Gray's Mussel. BMV 1981(6):56–60 (ES).

[Protein synthesis was investigated in cells of isolated gills of the Gray Mussel *Crenomytilus grayanus* in water with salinities of 6, 16, and 32 ppt (control) by following the incorporation of ^{3}H-leucine. Reversible changes in the rates of protein synthesis occurred in the cells of isolated tissues during adaptation to different environmental salinities. Intracellular levels of free leucine decreased in response to decreasing salinity and were not restored to initial levels within 24 h. It is concluded that cellular mechanisms of adaptation to changing salinities are autonomous.]

Kiyashko, S. I. & A. A. Karpenko. 1982. Calcium dependent differences in potential across the mantle of the Giant Oyster. BMV 1982(1):54–56 (ES).

[A calcium dependent difference in electrical potential of 0.6–3.4 mV was found across the mantle of the oyster *Crassostrea gigas.* Electrical properties of the mantle are determined by properties of the shell-producing epithelium.]

Koblikov, V. & I. A. Tsukurov. 1981. The topography of some regions of Peter the Great Bay (Japan Sea) in regard to the cultivation of the littoral scallop. Tez. Vses. Konf. Mol. Uchenykh Posvyashch 60 Letiu Plavmor, Moscow. [Theses of the All-Union Conference of Molluscan Researchers dedicated to the 60th anniversary of the Plavmor Scientific Institute], Moscow, 11–12 April 1981, pp. 23–24. Manuscript.

[The authors describe the basic physical-geographic conditions suitable for the cultivation of the littoral scallop.]

Korgina, E. M. 1982. On the movements of *Dreissena polymorpha* Pall. Bio. Vnutr. Vod (Biology of Internal Waters) Leningrad, No. 53, pp. 17–21.

[Under laboratory conditions, dreissenas moved along a horizontal plane at a maximum average speed of 2.1 cm/h for specimens from 11–14 mm in length. They are negatively phototactic and move mostly at night on sandy substrates.]

Kovaleva, T. A., S. Sh. Dautov, V. K. Kruchinin, I. P. Suzdal'skaya & A. V. Zhirmunskii. 1982. Comparative study of contractile properties of adductors in two bivalve species of the family Pectinidae. BMV 1982(1):39–43 (ES).

[The contractile properties of the phase and tonic parts of the adductors of *Swiftopecten swifti* and *Patinopecten yessoensis* were studied, as was the ATPase activity of glycerinated fibers of these muscles. It was found that the phase parts contract nearly 1000 times more rapidly than the tonic. The phase bundles of the adductor muscle of the first species contract more quickly than the corresponding muscle of the second species, although differences in the ATPase activities of their glycerinated fibers were not studied. The tonic parts of the adductor muscles of these species did not differ reliably in the speed of contraction and semi-relaxation, nor in the ATPase activity of the glycerinated fibers.]

Krivosheina, L. V. & A. L. Kozlyatkin. 1981. On the distribution of molluscan biotopes in the Bukhtarminsk Reservoir. Fauna i ekol. zhivotnikh Kazakhstana [Fauna and ecology of the animals of Kazakhstan], Alma Ata, pp. 13–21.

[Based on collections made in 1965, 1968, 1970, and 1977, the authors report the occurrence of 55 species of mollusks, and provide details on their depths and substrate preferences as well as on their densities. These mollusks occur most abundantly in the zone of medium depths (4–10 m) and, therefore, are an ideal food supply for fish.]

Kulikova, V. A., L. A. Medvedeva & G. M. Guida. 1981. Morphology of pelagic larvae of three bivalve species of the family Pectinidae from Peter the Great Bay (Sea of Japan). BMV 1981(4):75–77 (ES).

[Data, including information on shell form, sculpture, and morphology of umbo and hinge, are presented for the larvae of three species of scallops inhabiting Peter the Great Bay (Sea of Japan). The dates of collecting the larvae, the dimensions of the larval shells prior to settling, and the ambient water temperatures are recorded. A diagnostic table distinguishing the larvae is included.]

Kuznetsov, Yu. V. & V. V. Domaskin. 1982. Plastic collectors for oyster spat. Ryb. Kh-vo [Commercial Fisheries], No. 5, pp. 32–34.

[Tests conducted in Dzharylgach Bay (Crimea) showed that these

plastic conical cups were effective in collecting oyster spat at densities exceeding 200 spat per cup.]

Nistratova, S. N. & V. I. Danilova. 1982. Effects of cyclic nucleotides and 1-methyladenine on the cholinergic cardiac response in bivalve mollusks. ZEBF 18(4):349–354 (ES).

[The effects of cyclic nucleotides and 1-methyladenine on the sensitivities of isolated bivalve hearts to acetylcholine were studied. Cyclic dibutyryladenosine monophosphate, theophylin, papaverin, and NaF produce an accumulation of cyclic AMP within the cell, along with one of two different effects: (1) a significant increase in sensitivity to acetylcholine in the heart muscle of those mollusks with an neurogenic type of choline receptor (*Spisula sachalinensis* and *Callista brevisiphonata*); and (2) a small, lytic effect in those mollusks with tonic (myogenic) choline receptors (*Anodonta* sp., *Crenomytylis grayanus,* and *Modiolus dificilis*). Analogous activity was seen with 1-methyladenine. These data are discussed in the context of possible hormonal influence on the sensitivity to mediators in the reproductive cycle of mollusks.]

Odintsova, T. I., T. M. Ermokhina & I. A. Krashenninikov. 1982. Lysine-rich histones in the mussel *Crenomytilus grayanus.* Biokhimiya (Biochemistry) 47(9):1532–1539 (ES).

[Two lysine-rich histones differing in molecular weight were isolated from mature gonads of mussels. Despite differences in the length of polypeptide chains, these proteins have many similar properties and are highly charged due to high levels of lysine and arginine. Both have levels of arginine, serine, and alanine similar to those in histone H5. Tyrosine residues, which play an important role in the formation of tertiary structure in lysine-rich histones, occupy analogous positions in these two proteins. Spatial organization of the H1 molecule of mussels is identical, indicating that the dimensions and amino acid composition of the globular portions of both proteins are the same. The presence of a globular portion in the lysine-rich histones of mussels confirms the universal tertiary structure of histones H1 and H5. Concentration of all hydrophobic and of the majority of the aromatic amino acids in this portion of the molecule is indicative of its conservatism in amino acid composition, as is the localization of all alpha helices, characteristic features of proteins of this class.]

Saranchova, O. L. & E. E. Kulakovskii. 1982. The ecology of the marine starfish *Asterias rubens* L. in connection with the mariculture of the mussel in the White Sea. Povysh. produktiv. i ratsional. ispol'z. biol. resursov Belogo Morya. Materialy I Koordinats. Sovesh., Leningrad, Mai. pp. 74–75. [Increasing productivity and rational utilization of the biological resources of the White Sea. Materials and Coordinating Conference, Leningrad, May 1982, pp. 74–75.]

[The starfish, a serious predator on mussels in the White Sea, frequently completely destroys these mollusks on artificial collectors. One method of control involves placing the artificial substrate in fresh water for 2 h. Mussels tolerate fresh water better than starfish, which die during this exposure.]

Sokolov, V. A. & O. V. Zaisteva. 1982. Chemoreception in the osphradia of lamellibranch mollusks *Unio pictorum* and *Anodonta cygnea.* ZEBF 18(1):65–70 (ES).

[Preparations stained with methylene blue showed that primary sensory receptor cells are located under the epithelium of the osphradia; peripheral outgrowths of these cells were at the surface of the osphradia, with their central portions in the branchial nerve. Irritation of the osphradium with solutions of NaCl, mannose, glucose, sucrose, and urea produced periodic pulses of activity originating in the visceral ganglion. It is suggested that the osphradial receptors of these mollusks react to changes in the osmotic pressure of the surrounding fluid.]

Stadnichenko, A. P. 1982. New and little known species of the family *Cycladidae* in the fauna of the Ukraine. Vestnik Zoologiya [Zoological Herald], No. 3, pp. 28–32.

[Data are presented on the distribution and ecology of 13 species of the family Cycladidae new to the fauna of the UkrSSR.]

Stadnichenko, A. P. & Yu. A. Stadnichenko. 1981. On the influence of larval bitterling on the lamellibranch mollusk *Unio rostratus gentilis* Haas. GZ 17(5):57–61.

[Larvae of the bitterling *Rhodeus sericeus amarus* Bloch develop in the gills of the pearly mussel *U. rostratus,* and are localized in the water tubes of the gills. As the larvae grow, ciliary epithelia of the gill filaments flatten against the walls of the water tubes, and the epithelial cells become shallower, squeezing the blood vessels and connective tissues of the gill. In *U. rostratus* coexisting with *Rhodeus,* there are increased levels of phospholipids in the interfilamental junctions and cells of the connective tissues of the filaments.]

Yefendiev, Kh. M. 1981. Correlations in the levels of copper, zinc, and lead in the skeletal tissues of Recent and Apsheronian bivalve mollusks. (Topics in Paleobiogeochemistry), Baku, pp. 69–73.

[Using statistical methods, levels of Cu, Zn and Pb were analyzed in Recent members of the genera *Cardium, Didacna, Monodacna, Dreissena,* and *Mytilaster* from different regions in the Caspian Sea, and compared with those of the Apsheronian pelecypods *Monodacna minor, M. laevigata, M. sioegreni, M. pyrophila, Dreissena distincta, D. polymorpha, D. latro, D. eichwaldi,* and *Apsherona propinqua.* Levels of metals increased in the order Cu < Pb < Zn in the shells studied.]

Zatravkin, M. N. 1982. *Unio muelleri* and *Anodonta subcircularis* (Bivalvia: Unionidae) in the delta of the Moscow River. ZZ 61(3):445–447 (ES).

[Specimens of these species were collected at the Moscow State University Research Station near Zvenigorod on the upper part of the Moscow River. Additional samples of *A. subcircularis* were taken from ponds and from the Little Ustre River. Statistical analysis of conchological parameters confirmed the taxonomic status of these species. Further analyses of shell form and periostracum color indicate that *U. muelleri* belongs in the subgenus *Unio* rather than *Tumidusiana.* In the Volga Basin, *Unio* is represented by seven species: *conus, tumidus, muelleri, annulatus, rostratus, limosus,* and *pictorum. Anodonta subcircularis* can be distinguished conchologically, principally by its convexity, from *A. piscinalis.*]

Zhadan, P. M. & P. G. Semen'kov. 1982. Studies on the function of the abdominal organ in the scallop *Patinopecten yessoensis.* Doklady AN SSSR [Reports of the Academy of Sciences, USSR] 262(1):248–251.

[The function of the abdominal organ of this scallop was investigated in electrophysiological and behavioral experiments. Experiments on isolated preparations showed that the abdominal organ has a high sensitivity to mechanical stimuli, including vibration, and is essentially a mechanosensory structure. Two types of fibers were found reacting to different ranges of vibrations. Vibrational activities at frequencies of 100–600 Hz could be detected.]

CEPHALOPODA

FILIPPOVA, YU. A. & V. L. YUKHOV. 1982. New observations on the genus *Alluroteuthis* Odhner 1923 (Cephalopoda, Oegopsida). Antarktika (Antarctica) Moscow, No. 21, pp. 157–168.

[New material, obtained during studies of the diets of sperm whales in the Antarctic, and also during the cruise of the RV *Academicean Knipovich,* provided the first adult individuals of the poorly understood Antarctic squid *Alluroteuthis antarcticus,* previously known only from several juvenile examples. *Alluroteuthis* and the family Neoteuthidae are more precisely diagnosed, and the distribution of this species in the Antarctic region is mapped.]

KHROMOV, D. N. 1982. A new species of the genus *Sepia* (Cephalopoda: Sepiidae) from the southwestern portion of the Indian Ocean. ZZ 61(1):137–140 (ES).

[*Sepia ivanovi,* sp. nov. is described on the basis of two specimens taken in nearshore waters off eastern Africa. Comparisons are made to closely related species.]

NESIS, K. N. 1982. Zoogeography of the World Ocean: a comparison of pelagic zonation with regional divisions of the shelf (using cephalopod mollusks). "Marine Biogeography, topics, methods, principal divisions" Moscow, 1982, pp. 114–134.

[The basic principles of faunistic and zonal-geographic "regionalization" of the benthic shelf fauna are discussed as are the difficulties of homologizing the zoogeographic provinces of the different oceans and adjacent shores. In an analysis of the distribution of pelagic and shelf cephalopods, an attempt is made to develop a scheme of broad-ranged "regionalization" of the World Ocean and to compare the latitudinal zoogeographic provinces of the shelf against the broad zonality of the pelagic realm. A critically reanalyzed scheme of the zoogeographic provinces (45) of the shelf is presented. The differences in the pelagic fauna of the eastern and western Atlantic, Indo-West Pacific, and eastern Pacific are also analyzed, as are those of the boreal Atlantic and Pacific. The zoogeographic zones of the shelf are compared with the broader pelagic zones. The positions of the Mediterranean, Tasmanian, and South New Zealand province are emphasized. The following regions are recognized on the basis of shelf faunas: Arctic, Atlantic, and Pacific boreal; Western and Eastern Atlantic; Indo-West-Pacific; tropical Eastern Pacific; Magellanic and Kerguelen convergence zone; and Antarctic. They join the Boreal-Arctic, Tropical, and Antarctic super-regions, which correspond to the three larger faunas of pelagic cephalopods].

NESIS, K. N. 1982. Symbiotic bacteria in the reproductive systems of squids and cuttlefish. Priroda [Nature] (1):123–124.

[Accessory nidamental glands (ANG) of loliginid squid, as well as sepiid and sepiolid cuttlefish are white in immature females, but change color, depending on degree of maturity, from yellow and red to coral-red in ripe females. Symbiotic bacteria cause these changes, which are not mediated by hormonal levels in the ovary or by gonadotorpic hormones in the optic glands. The quantity of bacteria increases with the degree of maturity of the female and falls sharply immediately after spawning. The agent responsible for the coloration is called sepiaxanthine. Neither the function of the ANG nor the role of the bacteria is known.]

NESIS, K. N. 1982. Principles of the systematics of Recent cephalopod mollusks. Byul. Mosk. O-va. Ispit. Prirodi. Otl. Geol. (Bulletin of the Moscow Society of Naturalists, Geology Section) 57(4):99–112.

[A survey of the history of the classification and nomenclature of the higher taxa of Recent cephalopod mollusks is presented. From Linnaeus to the present, workers have constantly elevated the ranks of taxa, and there is an exceptionally high number of synonyms of taxa at ordinal rank. The current classification of Recent cephalopods can be considered natural, and contentions about heterogeneity in the orders of squids and octopuses, especially Oegopsida and Incirrata, are unfounded. The ranks reviewed range from the class to the superfamily and the following system is adopted: class Cephalopoda with subclasses Nautiloidea (with a single Recent genus *Nautilus*) and Coleoidea, the latter including four orders: Sepiida with suborders Spirulina and Sepiina; Teuthida with suborders Myopsida and Oegopsida; Vampyromorpha (1 species *Vampyroteuthis infernalis*); Octopoda with suborders Cirrata and Incirrata, the latter divided into three superfamilies: Bolitaenoidea, Octopodoidea, Argonautoidea. The necessity of separating Spirulidae (1 species *Spirula spirula*) as a separate suborder is demonstrated. The phylogenetic position of Vampyromorpha is examined and the inadvisability of maintaining the taxon Decapoda is supported. The entire classification is discussed in the context of the extinct Coleoidea.]

NIGMATULLIN, CH. M. 1981. Quantitative aspects of feeding in the squid *Sthenoteuthis oualaniensis* in the Indian Ocean. 4-i S'ezd Vses. Gidrobiol. O-Va. [Fourth Congress of the All-Union Hydrobiological Society] Kiev, 1–4 Dec. 1981. Thesis Report No. 1, pp. 29–30.

[The daily consumption of prey by the oceanic, nectonic squid *S. oualaniensis,* from the equatorial zone of the Indian Ocean was estimated, based on 300 adults, ranging from 15 to 24 cm in length and 150 to 350 g in weight, collected in June–August 1978 in water temperatures of 26–29°C.]

SHCHEPKIN, V. YA., G. E. SHUL'MAN & A. L. MOROZOVA. 1981. Chemical composition of the tissues of the squid *Sthenoteuthis oualaniensis* (Lesson) from the Red Sea and Indian Ocean. GZ 17(6):61–66 (ES).

[Adult individuals of *S. oualaniensis,* captured in June–August 1978 in the Red Sea and the tropical portion of the Indian Ocean had mantle lengths ranging from 19 to 23 cm and weights between 280 and 540 g. Ninety percent of the females were in the V1–V2 stage of maturity. The liver, mantle, fins, arms, and tentacles were assayed for: levels of dry matter (DM), non-fat dry matter, total lipids (TL), phospholipids, cholesterol, unesterified fatty acids (UEFA), triglycerides, and ethers of cholesterol. Levels of DM in the liver were 1.5–2 times higher than in other tissues, glycogen was twice as high, and TL 3.6–7.5 times as high. The major fraction of TL was in the liver with triglycerides at 53–54%; in the fins and extremities the level decreased to 40–51%. The mass of the liver was, on average, 4.3% of the total mass. High levels of lipids and non-fat dry matter in the liver indicate that the liver plays a role not only in metabolism, but as a reserve, especially of protein and triglycerides. Levels of dry matter, non-fat dry matter, and UEFA in the mantle were higher than in the fins. Levels of lipids and glycogen in the extremities were identical in the arms and tentacles. Swimming in vertical and horizontal migrations utilizes mainly lipids and proteins while rapid swimming consumes glycogen. Levels of glycogen were very low: 10–36 times lower than lipids, and 160–200 times lower than proteins. The squid liver stores very little glycogen. Similarities in chemical composition indicate that food reserves of squid from the Indian Ocean and Red Sea are similar: they are higher than in the Mediterranean *Loligo vulgaris* and lower than reserves of *Todarodes pacificus* from the Sea of Japan and *Illex illecebrosus illecebrosus* from the NW Atlantic.]

SHUL'MAN, G. E., G. I. ABOLMASOVA, A. L. MOROZOVA, Z. A. MURAVSKAYA, A. YA. STOLBOV, V. YA. SHCHEPKIN & K. K.

YAKOVLEVA. 1981. Physiological and biochemical approaches to ecological studies of the epipelagic squids of the World Ocean. 4-i S'ezd Vses. Gidrobiol. O-Va. [Fourth Congress of the All-Union Hydrobiological Society] Kiev, 1-4 Dec. 1981. Thesis Report No. 3, pp. 134-136.

[The following were studied: (1) The general chemical composition of squid: water content, dry weight, fat, protein, glycogen; (2) fractional composition of lipids: levels of phospholipid, triglycerides, non-esterified fatty acids, cholesterol and its ethers; (3) levels of metabolism: oxygen consumption; (4) production of nitrogen; (5) tissue respiration and respiratory coefficients; and (6) utilization of protein, fat, and glycogen while fasting under experimental conditions. The level of metabolism of the squid *S. oualaniensis* was shown to be very high ($Q = 2.86\ W^{0.78}$). From these data it was determined that the basic energy producing substance in squid is protein, supplemented by triglycerides; glycogen is utilized as an alternate source during stress. By the authors' estimates, the daily reserve ration of a squid is 5-15% of its body mass, the daily growth 1-2%.]

ZUEV, G. V. & M. A. TSYMBAL. 1982. Vertical distribution of the Winged Squid *Stenoteuthis pteropus* (Cephalopoda, Ommastrephidae). ZZ 61(5):683-689 (ES).

[The vertical distribution of the winged squid was determined using data from trawl catches and parameters such as temperature, light, prey supply and levels of dissolved oxygen. Its lower limit of depth distribution is 150-200 m. At night, surface catches decrease 2-3-fold. This squid has different vertical distributions throughout its range, reflecting various oceanographic regimes.]

SCAPHOPODA

CHISTIKOV, S. D. 1982. Recent scaphopod mollusks of the family Entalinidae (Scaphopoda, Gadilida). Report 1. Subfamily Heteroschismoidinae—I. ZZ 61(5):671-682 (ES).

[A preliminary revision of the subfamily Heteroschismoidinae, subfam. nov. (fam. Entalinidae) recognizes three genera: *Heteroschismoides* Ludbrook (1 species), *Spadentalina* Habe (1 species) and *Pertusiconcha*, gen. nov. (2 species—type species *Dentalium callithrix* Dall and contains *P. tridentata*, sp. nov. from the Tasman Sea). The placement of *Entalinopsis* Habe, the type species of which was, apparently, misidentified, is discussed as is the terminology used in the description of the shell and soft parts.]